OWNERS MANUAL

WITH INSTALLATION INSTRUCTIONS

BANKS®

STINGER™

SYSTEM

CHEVROLET/GM 6.5L DIESEL SUBURBANS WITH FACTORY TURBO OPTION

1994-96 2WD & 1994-95 4WD
WITH CATALYTIC CONVERTER

THIS MANUAL IS FOR USE WITH SYSTEM **49044**

BANKS®
GALE BANKS ENGINEERING
546 DUGGAN AVENUE • AZUSA, CA 91702
(626) 969-9600 • FAX (626) 334-1743
www.bankspower.com

©1999 GALE BANKS ENGINEERING

03/10/98 P.N. 96312

GENERAL INSTALLATION PRACTICES

1. For ease of installation of your Banks Stinger™ System, please read this 8-page owner's manual before starting any work. (If any pages are missing from this package, please call Gale Banks Engineering immediately for a replacement.) Become thoroughly familiar with all components and phases of the installation before starting any work.

2. Inspect all components supplied for any foreign material that may have entered during shipping & handling.

3. **WARNING! NEVER work under any vehicle supported only by a jack of any kind. DO NOT USE concrete blocks or other masonry items that may collapse under the vehicle weight.**

4. Pay particular attention to the routing of wires and hoses. Keep them away from exhaust heat, moving parts and sharp edges that may cause cuts or other damage. Route or tie away from critical areas as required. Keep all wires a minimum of 6" from hot exhaust parts, 8" or more is recommended whenever possible.

5. Right-hand and left-hand designations refer to the driver's right or left, as seated in the vehicle (i.e.: Right-hand refers to the passenger side of the vehicle), unless noted otherwise.

INSTALLATION PROCEDURE

1. Disconnect both batteries.

2. Pull crankcase vent hose out of turbocharger air inlet hose, then loosen air intake hose clamp at turbo compressor. Remove air cleaner assembly from vehicle to expose hole in inner fender panel.

3. If the vehicle has a plastic elbow inside the plastic adapter on the inner fender panel (between the inner and outer fender panels), remove this elbow by the following procedure. This elbow may not be present in '95 and newer vehicles, however the Banks Ram-Air inlet duct can be installed as described in the following step.

First remove the plastic tapered adapter that connects the air silencer to the inner fender panel. Squeeze the sides of the adapter together to free it from the panel. Use pliers to pull out the center button on the plastic retainer pin inside the elbow, then remove the pin.

Next, remove the two upper screws holding the underhood light assembly to the inner fender panel. Also loosen the battery hold-down clamps and remove one sheet-metal screw in the inner fender panel near the front of the battery, see Figure 1. Now remove the plastic elbow from within the fender by pulling and wiggling it rearward and toward the engine. This elbow is part of a silencer about 16" long, and will require quite a bit of effort to pull it free from the fender. If it will not move at all, check to make sure all sheet-metal screws noted were removed. The forwardmost screw near the battery attaches directly to this duct inside the fender and *must* be removed.

4. Install the new Banks Ram-Air duct into the inner fender opening to replace the factory silencer elbow. Once the new duct has been squeezed into place inside the fender, reinstall the factory plastic retainer pin or new pin, provided, through the ⅜" hole in the duct and inner fender bracket. Push in on the center button of the retainer pin to lock the pin in place. Reinstall the underhood light assembly screws. Reinstall battery. Reinstall the plastic tapered adapter to the inner fender panel by squeezing the sides together and engaging it into the edge of the inner fender panel opening.

NOTE: In extreme dust conditions, such as frequent travel on dirt roads or in agricultural usage, it is advisable to block off the lower air inlet opening that faces the ground using a piece of sheet metal or similar method. This prevents premature contamination of the air filter element by excessive dust kicked up by the front tire. See illustration for location.

5. Loosen compressor discharge hose clamp at turbocharger. Remove connecting strap between turbocharger and air inlet casting.

6. Remove decorative cover from top of engine. Unbolt and remove air inlet casting from top of intake manifold. Cover intake manifold opening to prevent foreign objects from falling into engine. **WARNING! Any foreign object that falls into the intake manifold can cause serious engine and/or turbocharger damage upon engine start up.**

7. Measure and mark the air inlet casting as shown in Figure 2. Centerpunch this location and drill through the casting wall with a letter "R" drill (.399 dia.), then tap the hole with a ⅛ NPT tap. Clean all chips from inside the casting.

8. Reinstall air inlet casting on intake manifold. Use new gasket provided in kit. Tighten loose clamps, reinstall brace. Install boost gauge hose fitting into hole tapped in air inlet casting. *Boost gauge hose fitting is supplied in boost gauge kit.* Use a pipe thread sealer (such as Teflon tape) on fitting pipe thread. Reinstall decorative cover on engine.

9. Remove the factory exhaust system by first prying the pins from the rubber frame mounted hangers. Spray some WD 40 or similar lubricant into the holes to make this easier. Remove the factory clamps from the pipes and work the joints loose, from the rear forward. If the slip joints in the pipes will not come apart, heat them with a torch until the pipes will separate. Unbolt the catalytic converter assembly from the turbine outlet pipe. Loosen the turbine outlet pipe clamp at the turbocharger, and remove the pipe.

10. Loosely clamp the new turbine outlet pipe to the turbocharger. Reinstall the catalytic converter assembly onto the turbine outlet pipe with the provided gasket and hardware. Slide the proper Banks intermediate pipe onto the catalytic converter assembly with the large notch aligned with the locating pin on the catalytic converter assembly and clamp lightly to hold in position.

Standard cab models: install the muffler and then the tailpipe.

Extended cab and crew cab: tighten the 3" clamp at the joint of the intermediate pipe and catalytic converter assembly. Place the tailpipe into position and install 3½" hanger clamp into the rubber hanger. Place the muffler outlet over the end of the tailpipe and hold it in position, level and straight, with a jack or other suitable support. Check that the hangers are angled properly, and that the tailpipe outlet is level with the vehicle. Measure the distance from the dimples in the muffler inlet

FIGURE 1

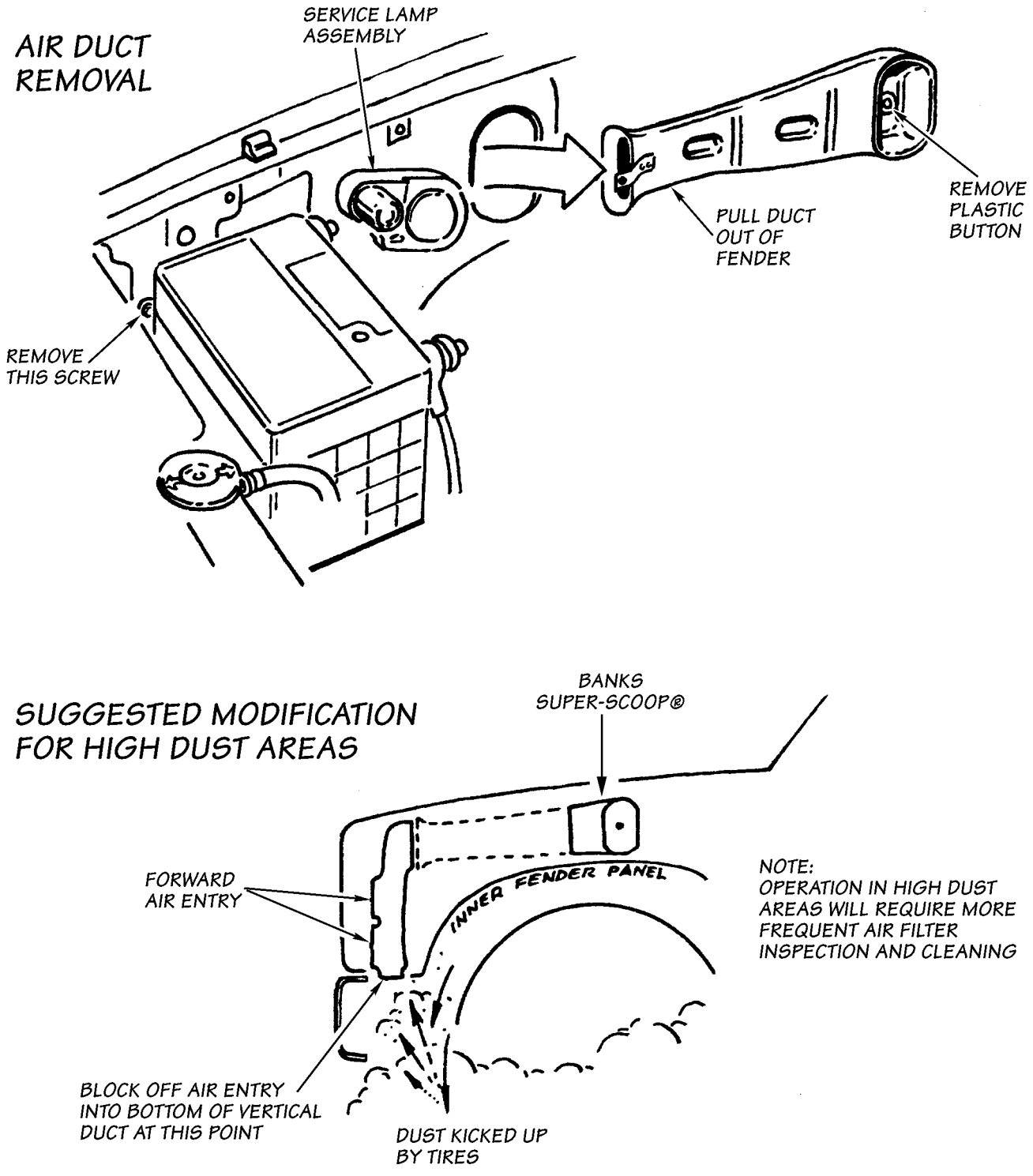
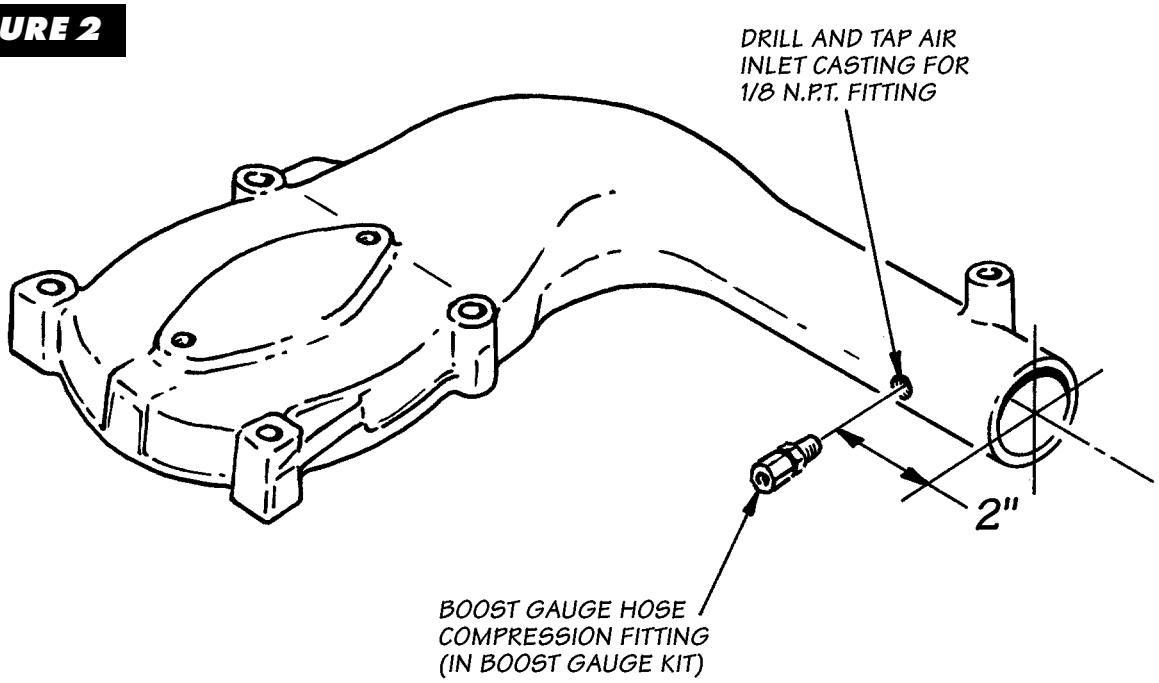

AIR DUCT REMOVAL
SERVICE LAMP ASSEMBLY
REMOVE PLASTIC BUTTON
PULL DUCT OUT OF FENDER
REMOVE THIS SCREW
SUGGESTED MODIFICATION FOR HIGH DUST AREAS
BANKS SUPER-SCOOP®
FORWARD AIR ENTRY
INNER FENDER PANEL
NOTE: OPERATION IN HIGH DUST AREAS WILL REQUIRE MORE FREQUENT AIR FILTER INSPECTION AND CLEANING
BLOCK OFF AIR ENTRY INTO BOTTOM OF VERTICAL DUCT AT THIS POINT
DUST KICKED UP BY TIRES

FIGURE 2



where the extension pipe will stop to the end of the intermediate pipe. Add 2¾" to the measurement to compensate for the slip joint on the extension pipe. Cut the extension to this length (Crew cab applications may not need trimming). Install the trimmed pipe onto the intermediate pipe and into the muffler. Install the 3" hanger clamp into the rubber hanger on the frame and lightly clamp it to the extension pipe.

Adjust the turbine outlet pipe and exhaust system to provide maximum clearance to frame and other components. Check alignment of muffler and tailpipe to hangers and vehicle. muffler should be straight and level, and the rubber hangers should be swung or angled towards the front of the vehicle ¾" to 1" to allow for expansion of the pipes. When alignment and clearances look good, tighten all clamps including the factory v-band on the turbine outlet pipe.

11. Remove pipe plug and install the pyrometer gauge probe (supplied in pyrometer gauge kit) in the bung on the turbo exhaust outlet pipe. We suggest using an anti-sieze compound on the probe threads to make removal easier for any future service.

12. Install instrument gauge panel in a location providing easy viewing for the driver. *NOTE: An optional two-gauge console is available from Banks for mounting gauges on top of the dash.*

13. Wire and plumb gauges as shown in instructions included with gauges. Route and tie wiring and nylon hose away from moving parts and hot exhaust components with cable ties provided.

14. Reinstall air cleaner assembly on right inner fender panel. Reinstall vent hose, tighten hose clamps.

15. Install new air filter supplied. See air filter cleaning and maintenance instructions elsewhere in this booklet.

OTTOMIND INSTALLATION

16. In order to access the vehicle's Powertrain Control Module (PCM), the inner panel of the glove box must be removed. Open the glove box and remove the contents. Disconnect the nylon cables from the side of the compartment, allowing the door to swing down out of the way.

1994 models- Use a small screwdriver to pry the white plastic cover from over the compartment light.

Carefully flex the top sides of the compartment toward the center, allowing the inner glove box to be removed.

17. Look through the glove compartment opening toward the right to locate the PCM. The PCM is held in place by two spring clips. Grasp the PCM and pull towards the rear of the vehicle. **CAUTION! DO NOT PULL ON THE CONNECTORS OR THE WIRES THAT ARE HOOKED TO THE PCM.** Pull the PCM out of the dash with the harness connectors intact, just enough so that you can remove the access cover.

18. Remove the Torx screw and the access cover. Position the PCM so the PROM access hole is viewed at the bottom left-hand side of the PCM. In this position, the electrical connectors will be pointing away from you. The factory PROM is secured to the circuit board by a blue plastic cover. Using two fingers to squeeze the locking tabs inward, lift the factory PROM from the circuit board.

19. The Banks Ottomind PROM is keyed such that it will only install one way. With the PCM positioned as mentioned in the previous step, the Banks Ottomind will install with the label reading properly. Install the Banks Ottomind in the socket left vacant by the factory prom. **DO NOT FORCE THE INSTALLATION.** If the Ottomind does not engage the pins with a slight downward pressure, recheck the orientation of the Ottomind. If difficulty persists, check to that there are no bent or broken pins on the circuit board.

20. Once the Ottomind is installed in the PCM, reconnect the vehicles batteries, and start the vehicle. Check to ensure that the Service Engine Soon and the Service Throttle Soon lights go out shortly after the vehicle is started. If the vehicle starts and runs without any difficulty, reinstall the access cover, the PCM and the glove box panel.

21. Start engine, allow engine to warm up. Drive vehicle, listen for exhaust leaks or rattles. Reposition or tighten exhaust components as required.

OPERATING CHARACTERISTICS

Your Banks Stinger will allow your GM 6.5L factory turbocharged engine to produce more power and respond quicker well within the safe operating range of the engine as long as the following guidelines are adhered to.

Use your pyrometer (exhaust temperature gauge) and boost gauge to monitor your engine's operation. At idle, EGT (exhaust gas temperature) will be very low, perhaps only 150°F. As the throttle is opened for higher speeds and greater loads, the EGT will rise. The highest EGT will be seen under maximum load at full throttle, such as climbing a steep grade with a heavily laden vehicle. Use caution if your EGT approaches **1000°F**, with **1050°F** being the **SAFE MAXIMUM!**

If the vehicle approaches these EGT levels under these conditions, downshift the vehicle to reduce the load, or back off the throttle.

Exhaust gas temperature in this system is measured "after" the turbocharger in the turbine outlet pipe, as is commonly done on long-haul diesel trucks.

Your boost gauge monitors the air pressure the turbo compressor is delivering to the intake manifold. The Banks Stinger system is designed to provide a maximum boost pressure of approximately 10-11 PSI. This is an average maximum figure which will vary from engine to engine. This maximum figure will be reached only under hard acceleration/heavy load conditions. Light cruise conditions may show little or no boost.

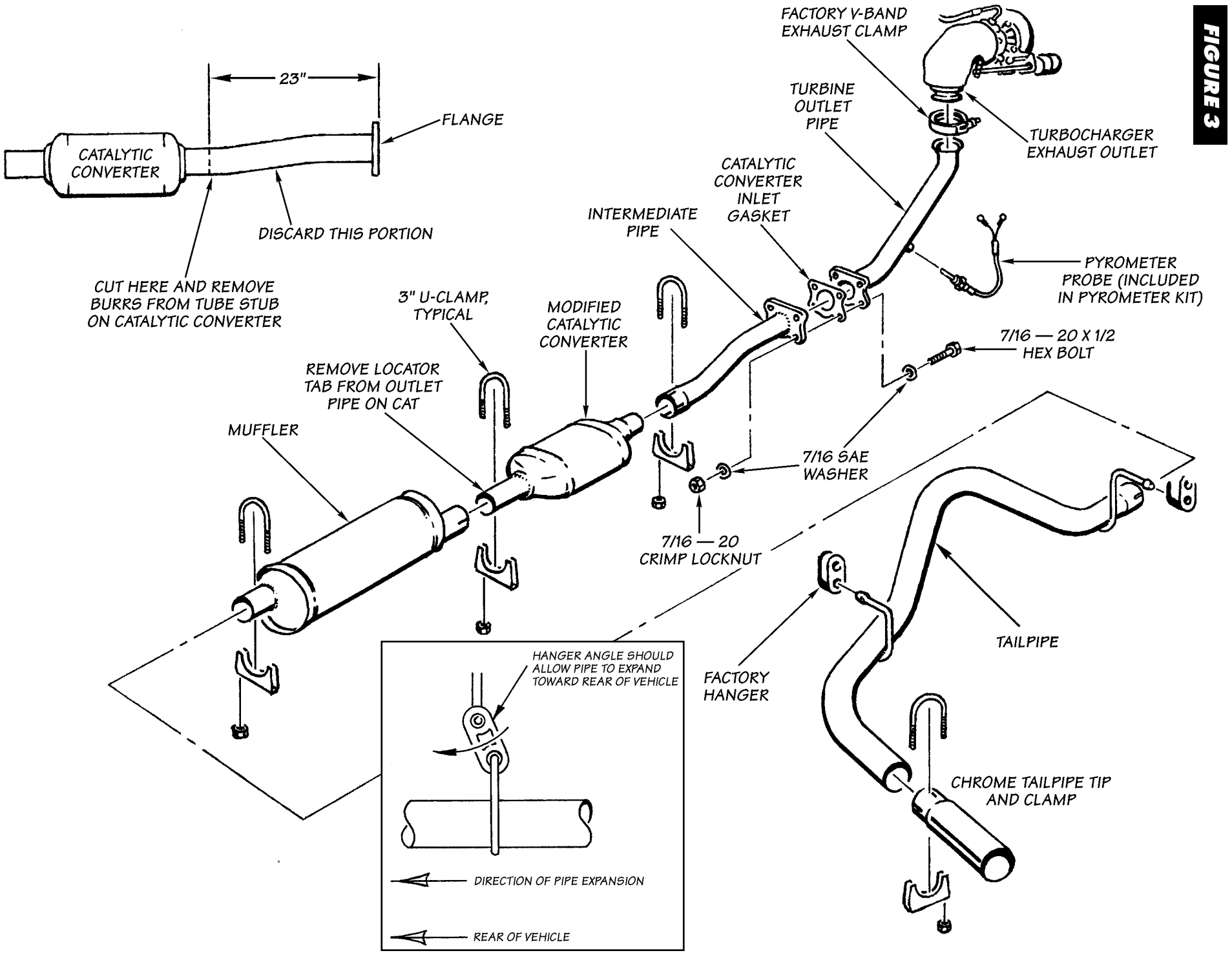
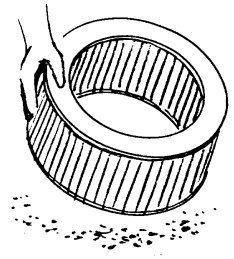


FIGURE 3
23"
FLANGE
CATALYTIC CONVERTER
DISCARD THIS PORTION
CUT HERE AND REMOVE BURRS FROM TUBE STUB ON CATALYTIC CONVERTER
FACTORY V-BAND EXHAUST CLAMP
TURBINE OUTLET PIPE
TURBOCHARGER EXHAUST OUTLET
CATALYTIC CONVERTER INLET GASKET
INTERMEDIATE PIPE
PYROMETER PROBE (INCLUDED IN PYROMETER KIT)
3" U-CLAMP, TYPICAL
MODIFIED CATALYTIC CONVERTER
7/16 — 20 X 1/2 HEX BOLT
REMOVE LOCATOR TAB FROM OUTLET PIPE ON CAT
MUFFLER
7/16 SAE WASHER
7/16 — 20 CRIMP LOCKNUT
TAILPIPE
FACTORY HANGER
CHROME TAILPIPE TIP AND CLAMP
HANGER ANGLE SHOULD ALLOW PIPE TO EXPAND TOWARD REAR OF VEHICLE
DIRECTION OF PIPE EXPANSION
REAR OF VEHICLE

CLEANING AND OILING THE BANKS RAM-AIR FILTER

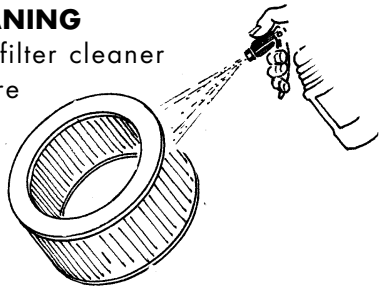
1. **PRE-CLEANING**

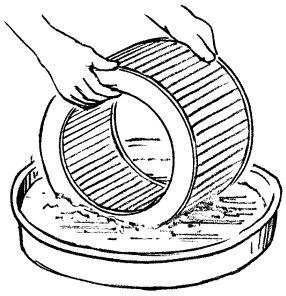
Tap the element to dislodge any large embedded dirt, then gently brush with a soft bristle brush. *NOTE: If complete cleaning is not practical at this time, reoil the element and reinstall in your vehicle.*



2. **SPRAY-ON CLEANING**

Spray Banks air-filter cleaner liberally onto the entire element and let soak for 10 minutes.





PAN CLEANING

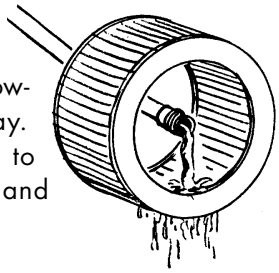
Large air-filter elements can be rolled or soaked in a shallow pan of Banks air-filter cleaner. Remove immediately and let soak for approximately 10 minutes.

3. **CLEANING HINTS**

Use only Banks air-filter cleaner. NO gasoline cleaning, NO steam cleaning, NO caustic cleaning solutions, NO strong detergents, NO high-pressure car wash, NO parts cleaning solvents. Any of these NOs can cause harm to the cotton filter media plus SHRINK and HARDEN the rubber end caps.

4. **RINSE OFF**

Rinse off the element with low-pressure water. Tap water is okay. Always flush from the clean side to dirty side. This removes the dirt and does not drive it into the filter.



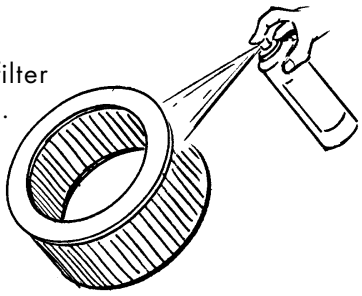
5. **DRYING HINTS**

Always dry naturally. After rinsing, shake off all excess water and let the element dry naturally. DO NOT USE COMPRESSED AIR – DO NOT USE OPEN FLAME – DO NOT USE HEAT DRYERS!

EXCESS HEAT WILL SHRINK THE COTTON FILTER MEDIA. COMPRESSED AIR WILL BLOW HOLES IN THE ELEMENT.

6. **AEROSOL OILING**

After cleaning air filter always reoil before using. Spray Banks Ram-Air filter oil down into each pleat with one pass per pleat. Wait 10 minutes and re-oil any white spots still showing.



7. **OILING HINTS**

Never use a Banks Ram-Air filter without oil (the filter will not stop the dirt without the oil). Use only Banks Ram-Air filter oil. Banks air-filter oil is a compound of mineral and animal oil blended with special polymers to form a very efficient tack barrier. Red dye is added to show just where you have applied the oil. Eventually the red color will fade but the oil will remain and filter the air. NEVER USE Automatic Transmission Fluid. NEVER USE Motor Oil. NEVER USE Diesel Fuel. NEVER USE WD40, LPS, or other light-weight oils.

8. **REINSTALL**

Reinstall your Banks Ram-Air filter element with proper care. Make sure the element seats properly in the filter case. Install the cover making sure it's in the right position. Tighten all the nuts, bolts, screws or clips to factory specifications.

9. **DO NOT DISCARD**

Affix the "Do Not Discard" sticker to the filter case (included with every Banks replacement element). Make sure you put the sticker in a highly visible place to alert your mechanic not to discard.

10. **PERFORMANCE HINTS**

Service every 50-100,000 miles on street-driven applications. Service more often in offroad or heavy-dust conditions. If an air-filter restriction gauge is installed, then change the element when the air-filter restriction reaches 18"/H_2O.

CAUTION! Extremely fine dust from agriculture or offroad use will pull the oil from the element. Frequent reoiling of the element's clean side might be required. Completely service when practicable. For extra protection use an air-filter sealing grease on rubber ends of the element. Service only with Banks air-filter cleaner and Banks air-filter oil.

Stinger GM 6.5 Factory-Turbo Suburban 49044

QTY.	DESCRIPTION	PART#
4	BOLT, 7/16" 20 x 1½" Hex	91629
1	CARD, Product Registration	96392
4	CLAMP, Exhaust, 3" HD	52465
1	DUCT, Super-Scoop Air Inlet	42590
1	FASTENER, Push-In, Inlet Duct	92017
1	FILTER ELEMENT, Banks Ram-Air	41022
1	GASKET, Air Inlet Casting	93024
1	GASKET, Cat. Converter Inlet	93025
1	GAUGE, Boost, 0-15 PSI	63021
1	KIT, Installation, Boost Gauge	63032
1	KIT, Pyrometer Gauge	64001
1	MOUNTING PANEL, Two Gauge, Black	63002-01
1	MUFFLER, 3 x 3" Stainless	52419
4	NUT, 7/16" 20 Crimp Lock	91619
2	NUT, Machine Screw, 10-32	91833
1	OWNERS MANUAL	96312
1	PIPE, Chrome Tailpipe Tip	52285
1	PIPE, Intermediate, 3" Aluminized	52063
1	PIPE, Tailpipe, 3" Aluminized	52074
1	PIPE, Turbine Outlet	52014
2	PLAQUE, "BANKS POWERPACK"	96008
2	SCREW, Machine, 10-32 x ½" Pan Head	91834
1	SERVICE KIT, Air Filter	90094
10	TIE, Cable, 11" Black	62002
1	WARRANTY STATEMENT	96362
4	WASHER, 7/16" SAE	91602
2	WASHER, #10 Ext. Tooth Lock	91832